



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,597	12/01/2000	Ron Naftali	002213 USA/PDC/WF	2486

32588 7590 12/19/2003

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER

BALI, VIKKRAM

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 12/19/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/726,597

Applicant(s)

NAFTALI ET AL.

Examiner

Vikkram Bali

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8 and 12-16 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: ____.

Art Unit: 2623

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-8 and 12-16) in Paper No. 11 is acknowledged.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-8 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alumot et al (US 5699447).

With respect to claim 1, Alumot discloses inspection of an article (see figure 1), by scanning a predetermined section of the surface, having the scanned data being 2 dimensional data dividing the data into blocks, providing the plurality of nodes each node corresponds to the data block processing the data blocks using the corresponding nodes (see col. 9, lines 33-60, and figure 12, the surface is scanned using the sensors 46a-46g i.e. a col. of data is taken this data is taken from a two dimensional wafer surface which gets scanned by the apparatus i.e. a two dimensional data is scanned of the wafer, then the data is processed using the nodes i.e. the 60a-60e i.e. the data is compared using the reference "nodes") as claimed. However, he fails to disclose the dividing the data into the columns, as claimed. But, he did show in the figure 12 that the sensors are in a line and they use to scan the wafer in that line, therefore, one ordinary skilled in the art at the time of invention can simply use that line of sensors as a column of data as scanned off the wafer. This modification produces an apparatus that scans the surface of an article and then compares that data to the reference data in order to get to the defects in the article surface.

With respect to claim 2, he further teaches the processing step as comparing data of an inspected pattern with data representative of a corresponding pattern in another section of the surface, and determining a suspected defect location, (see col. 9,

Art Unit: 2623

lines 55-60, and this reference data is the data obtained from the left side of the wafer surface) as claimed.

With respect to claim 3, he further teaches, two dimensional array is arranged as a plurality of lines of data, and the data blocks comprise of equal number of lines, (see the wafer the wafer is two dimensional and the data obtained from the wafer by the scanner is two dimensional data see col. 9, lines 48-50) as claimed.

With respect to claim 4, he further teaches, n nodes in x direction and m nodes in y direction and dividing the data in columns $1/n$ in x direction and dividing the data in columns $1/m$ in y direction, (see the figure 1, the wafer is two dimensional and the figure 12 the sensor are arranged in a line the data obtained by the sensors are in the columns and the data obtained by each sensor is $1/(\text{number of sensors})$) as claimed.

Claims 7 and 8 are rejected for the same reasons as set forth in the rejection of claims 3 and 4, as the claims 7 and 8 are claiming similar subject matter as claimed in claims 3 and 4.

Claims 12 and 16 are rejected for the same reasons as set forth in the rejection of claims 1-4, as the claims 12 and 16 are claiming similar subject matter as claimed in claims 1-4.

Art Unit: 2623

With respect to claim 15, it is well known in the field of defect detection in the wafer industry to use TDI detector in order to scan the wafer. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to simply use the conventional apparatus such as TDI to scan the wafer in order to find the defect.

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alumot (US 5699447) as applied to claim 12 above, and further in view of Alumot et al (US 5982921) (herein after '921).

With respect to claims 13 and 14 Alumot discloses the invention substantially as discloses and as described above for claim 12. However, Alumot fails to disclose the light sensors are at least two dark field sensors and the light sensors further have a bright sensor, as claimed. '921 teaches light sensors are at least two dark field sensors and the light sensors further have a bright sensor, (see col. 34, lines 1-8) as claimed. Therefore, one ordinary skilled in the art at the time of invention can combine the two references as they are analogous because '921 is a continuation of the Alumot. Motivation of the combining does comes from that also.

Allowable Subject Matter

5. Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

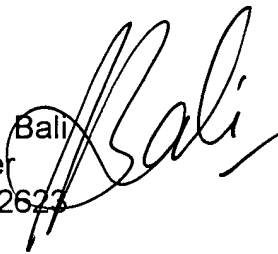
Art Unit: 2623

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Vikkram Bali
Examiner
Art Unit 2623

A handwritten signature in black ink, appearing to read 'V. Bali', is written over the printed name and title of the examiner.

Vb
December 16, 2003